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Site Review And Update

LEES LANE LANDFILL

LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

CERCLIS NO. KYD980557052

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Agency for Toxic Substances and Disease Registry

Division of Health Assessment and Consultation

Atlanta, Georgia 30333

Site Review and Update: A Note of Explanation

The purpose of the Site Review and Update is to discuss the current status of a hazardous waste site and to identify future ATSDR activities planned for the site. The SRU is generally reserved to update activities for those sites for which public health assessments have been previously prepared (it is not intended to be an addendum to a public health assessment). The SRU, in conjunction with the ATSDR Site Ranking Scheme, will be used to determine relative priorities for future ATSDR public health actions.

SITE REVIEW AND UPDATE

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Prepared by

**Remedial Programs Branch
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry**

SUMMARY OF BACKGROUND AND HISTORY

The Lees Lane Landfill is located adjacent to the Ohio River in Jefferson County, Kentucky, approximately 4.5 miles south of Louisville. The 112-acre site is bordered on the east and south by a flood protection levee. Across the levee to the east is Riverside Gardens, a residential development of about 330 homes and 1,100 people. The west side of the site has a narrow, terraced area which serves as a buffer zone between the landfill and the Ohio River.

From the late 1940s until April 1975, when it was closed by the State, the site received domestic, commercial, and industrial wastes, including about 212,000 tons of mixed industrial waste (some drummed). The site also was used for sand and gravel quarrying before and during the landfill operations.

In March 1975, homeowners in Riverside Gardens reported flash fires around their water heaters. A subsequent investigation detected explosive levels of methane gas and seven homes were evacuated and eventually purchased by Jefferson County. In 1978, extensive monitoring was conducted to define the gas migration problem, and in October 1980, a gas collection/venting system was installed between the landfill and the Riverside Gardens subdivision.

In February 1980, the State discovered approximately 400 drums on the site, 40 of which contained hazardous materials including phenolic resins, benzene, and heavy metals. The hazardous wastes were removed from the site by the site owners in September and October 1981 and transported to an approved disposal facility. The remaining non-hazardous wastes and empty drums were buried on-site.

In early 1981, the State installed shallow groundwater wells at the site which were sampled by EPA in April 1981. The sampling results indicated elevated concentrations of heavy metals (including arsenic, cadmium, chromium, and lead). However, it was reported that the contaminant concentrations were likely elevated due to excessive sediment in the samples from poor well construction.

The Lees Lane Landfill was added to EPA's National Priorities List (NPL) in December 1982. In April 1986, EPA completed its Remedial Investigation/Feasibility Study (RI/FS) of the site and identified four contaminations of concern: arsenic, chromium, lead, and benzene.

Between March and December 1987, EPA conducted response actions at the site which included 1) installation of security gates and cautionary signs; 2) capping "hot spots" with clay; 3) burial of empty drums and drums containing non-hazardous materials; 4)

removal of drums containing hazardous materials for off-site disposal; 5) construction of a rip-rap slope along the Ohio River bank; 6) repair of an existing drainage ditch and installation of a 20-inch drainage pipe as part of the drainage system; 7) installation of ten gas monitoring wells and two groundwater monitoring wells; 8) repair of the existing gas collection system; and 9) installation of an alternative water supply for residents within 1,500 feet of the site.

Operation and maintenance (O&M) activities were conducted for one year (July 1988-June 1989) by EPA following completion of the response activities, including inspection of the gas monitoring wells, quarterly gas and groundwater sampling, and ambient air sampling three times a year. Other site activities included inspection and maintenance of the gas collection system, capped waste areas, and rip-rap along the Ohio River bank. Since that time, EPA has entered into an Administrative Order on Consent with the Louisville and Jefferson County Metropolitan Sewer District (MSD) under which MSD has agreed to perform certain O&M activities at the site for twenty nine years.

In March 1983, an EPA contractor completed a review of response actions conducted previously by EPA at the Lees Lane Landfill site. The purpose of the review was to confirm that the response actions implemented remain operational and functional, and to determine if institutional controls in place remain protective of human health and the environment. The results of this review indicated that the past EPA response actions continue to be protective of human health and the environment, but routine O&M activities are needed to ensure that the remedy remains effective. In addition, the review found that the subsurface gas collection system was not operating efficiently and needed to be repaired to ensure that hazardous gases would not migrate off-site into the Riverside Gardens subdivision.

ATSDR's November 15, 1985 Health Assessment for the site discussed two environmental pathways of concern: 1) groundwater contaminated by landfill leachate, and 2) soil gas production and transport. Surface contamination was also mentioned as a pathway of concern because the site was not fenced or posted. Benzene, chromium, lead, and arsenic were identified as contaminants of concern by the health assessment. The health assessment concluded that subsurface decomposition gases migrating from the site would pose a public health and safety problem for Riverside Gardens residents unless efforts were made to prevent the gas migration. Recommendations of the health assessment included 1) posting of the site to help prevent contact with potential "hot spots" and contaminated surface soil; 2) investigation of exposed and buried drums and drummed wastes; 3) installation and regular sampling of an additional shallow monitoring well to identify groundwater flow reversals and contaminant migration toward residential wells; and 4) implementation of EPA remedial action

alternative No. 3 (at a minimum), which included monitoring of groundwater, subsurface gas, and ambient air; gas collection; and cleanup of surface wastes.

CURRENT SITE CONDITIONS

On April 14, 1993, Steve Richardson of ATSDR visited the Lees Lane Landfill site with a representative of the Jefferson County Health Department. During the site visit, two persons were observed on the site and several others were seen near the site entrance. In addition, children were seen exiting a school bus in the Riverside Gardens neighborhood. Evidence of site trespassing, such as spent shotgun shells and dirt bike trails, and recent dumping activities (e.g., old appliances, used tires) were noted. Access to motor vehicles is restricted by two locked barricades at the old site entrance; however, dirt bikes and other such vehicles may enter the site at other points. Most areas of the landfill were heavily vegetated. The blower for the methane collection system was running, and the system seemed to be operating properly. No significant areas of erosion were noted along the Ohio River embankment, which had been stabilized with a large amount of rip-rap.

Groundwater, soil gas, and ambient air data collected by EPA from July 1988 through June 1989 address some concerns raised by ATSDR's November 1985 health assessment. As discussed in EPA's March 1993 review, these sampling results indicate that 1) groundwater contaminant concentrations have decreased over time and do not present a health threat to nearby residential wells; 2) inhalation of hazardous substances in ambient air is not a problem; and 3) the gas collection system is preventing high concentrations of subsurface gases from migrating off-site. In addition, potential exposure to on-site wastes through direct contact have been minimized by the capping of surface "hot spots".

Since mid-1992, the Louisville and Jefferson County MSD has sampled groundwater, soil gas, and ambient air at the site on a quarterly basis. The data from these sampling events have not been evaluated by ATSDR but are likely similar to the 1988-89 monitoring results.

CURRENT ISSUES

In order to determine whether members of the surrounding community had health concerns related to the site, ATSDR contacted representatives of the Kentucky Department of Environmental Protection (KDEP) and Jefferson County Health Department. These officials were not aware of any recent community health concerns related to the site. In 1991, however,

residents of Riverside Gardens complained of chemical odors from the landfill which were eventually traced to three leaking, rusted drums. The drums were subsequently removed from the site by the Commonwealth of Kentucky.

ATSDR believes that the response actions previously conducted at the Lees Lane Landfill, including the installation and maintenance of the subsurface gas collection system and the connection of nearby residences to the municipal water system, have minimized any potential public health threat associated with the site.

CONCLUSIONS

Based on ATSDR's review of available information, it is likely that the Lees Lane Landfill site does not represent a threat to public health. However, proper operation and maintenance activities at the site, especially those related to the subsurface gas collection system, must be continued in order to ensure that the health of the surrounding community is protected.

Although some of the recommendations of the 1985 health assessment were not directly implemented, the past remedial/response actions, the current operation and maintenance activities, and the regular monitoring program have achieved the desired objective of protecting public health and safety.

As discussed in the 1985 health assessment, subsurface gases migrating from the site and entering nearby residences are the major health and safety threat associated with the site. This threat has been minimized, however, by the continuing operation and maintenance of the subsurface gas collection/venting system and quarterly subsurface gas and ambient air sampling. Other potential exposure pathways identified in the health assessment - those associated with contaminated groundwater and surface contamination - are believed to be insignificant since 1) residences nearest to the site have been connected to the municipal water system, and 2) areas of surface contamination have been covered/capped.

RECOMMENDATIONS

1. The recommendation from the 1985 health assessments regarding posting of the site should be implemented. ATSDR believes that anti-trespassing/anti-vandalism signs should be posted around the site to discourage persons from entering the site.

2. The missing gate and adjacent fencing at the old Putnam Street entrance (near the levy) should be replaced, if possible, to help prevent motorbikes and all-terrain vehicles from using the site.
3. In order to protect public health and safety, 1) continue operation and maintenance of the subsurface gas collection system, and make any necessary repairs to the system (to ensure optimum operating efficiency), and 2) continue sampling of groundwater monitoring wells and private wells, gas monitoring wells, and ambient air on a regular basis.
4. The data and information developed in this Site Review and Update have been evaluated to determine if follow-up actions may be indicated. Based on this evaluation, no further public health actions are indicated at this time.

DOCUMENTS REVIEWED

1. Agency for Toxic Substances and Disease Registry. Health Assessment for the Lees Lane Landfill. November 15, 1985.
2. Ebasco Services, Inc. Operations and Maintenance Plan for Post-Removal Site Control at the Lee's Lane Landfill Site, Louisville, Kentucky. March 1988 (revised April 1991).
3. Resource Applications, Inc. Review of Response Actions at the Lees Lane Landfill Site, Louisville, Kentucky. March 11, 1993.
4. U.S. Environmental Protection Agency, Region IV. Administrative Order on Consent; In the Matter of Lee's Lane Superfund Site, Jefferson County, Kentucky; Louisville and Jefferson County Metropolitan Sewer District and Jefferson County, Kentucky, Respondents. July 1991.
5. U.S. Environmental Protection Agency, Region IV. Enforcement Decision Document, Remedial Alternative Selection, Lees Landfill Site, Louisville, Kentucky. September 1986.

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